KIN-TEK
The Calibration Specialists

AMBIENT AIR MONITORING

Dynamically Blending % Level Gases for Calibration

A broad concentration range gas mixture or precise mixture of specific gases can be required for testing, exposure, or calibration for a variety of applications. An ambient air monitoring station is such an application that requires calibration with accurate and traceable gas mixtures. Outside ambient air monitoring stations monitor and measure gases such as N_2, O_2, NO_2, CO, CO_2, VOCs, SO_2, H_2S or others. The gases detected, the gas concentration, and the monitoring or detection device drive the requirement of the application. Technological advances such as small gas sensors, micro-gas chromatographs, and mobilized detection equipment have improved the sensitivity and measurement capability of air monitoring devices. Regardless of the type of ambient air monitoring device, all share the requirement that they need accurate calibration to ensure exposure results are valid.

While reactive gas contaminants may be present at low to high ppm concentrations, atmospheric gases are typically present in air at % level concentrations. Calibrating or bump checking an ambient air monitor requires generating gases indicative of the environment. Unfortunately, storing custom gas mixtures or using static gas blends with reactive gases can introduce offsets or inaccurate calibrations because of the adsorbent nature of reactive gases and loss to static cylinder active sites. Additionally, static mixtures may require dilution or external equipment to achieve multi-point verification. Component gas interaction to active wall surfaces should be minimized and high purity gas sources should be used to ensure accuracy and repeatability.

"Ambient air monitoring requires calibration with accurate and traceable gas mixtures."

CALIBRATE YOUR WAY!

KIN-TEK Analytical, Inc. (KIN-TEK) provides trace gas calibration solutions to the gas analyzer, sensor, and detector industry using permeation tubes and gas standard generators. Permeation tubes are a proven, accurate, and traceable solution for creating trace concentration ranges (ppm to pptr) since the pure permeating gas can be accurately diluted to create lower concentrations. However, generating percent (%) concentration targets are beyond the reach of typical permeation devices and it would take multiple devices and equipment to achieve 5% or higher concentrations.

CALIBRATE IN % LEVEL CONCENTRATIONS

To bridge the gap between permeation tube concentration capabilities and percentage level concentrations, KIN-TEK's FlexMixer™ Multi-Gas Blending System provides a flexible automated solution for dynamically blending gases to achieve high ppm to % concentration gas mixtures.

The FlexMixer™ Multi-Gas Blending System dynamically blend source gases creating an easily controlled, accurate, and traceable gas mixture that can be automated for multi-point flow generation and delivered in real time.

"Flexible automated solutions for dynamically blending gases to achieve high ppm to % concentration gas mixtures."

FlexMixer™ Multi-Gas Blending System

- Automated Gas Blending of Balance Gas and up to 3 Component Gases.
- 100+ preloaded gas configurations available; 20 user defined gas blends.
- Profile and Manual control modes.
- Create, control, and measure custom gas blends.
- Perform multi-point calibration of analyzers, sensors, detectors.
- Dilute existing cylinder sources.
- User friendly software for a simplified solution with integrated safety shut off.
- Portability between labs or facilities with small footprint.

The FlexMixer™ Multi-Gas Blending System precisely blends multiple gas sources in varying proportions through automated flow step changes to maximize efficiency and flexibility for preparing a broad range of gas mixtures. Pure gas sources or gas mixtures can be blended or diluted to broaden the scope of calibration solutions.

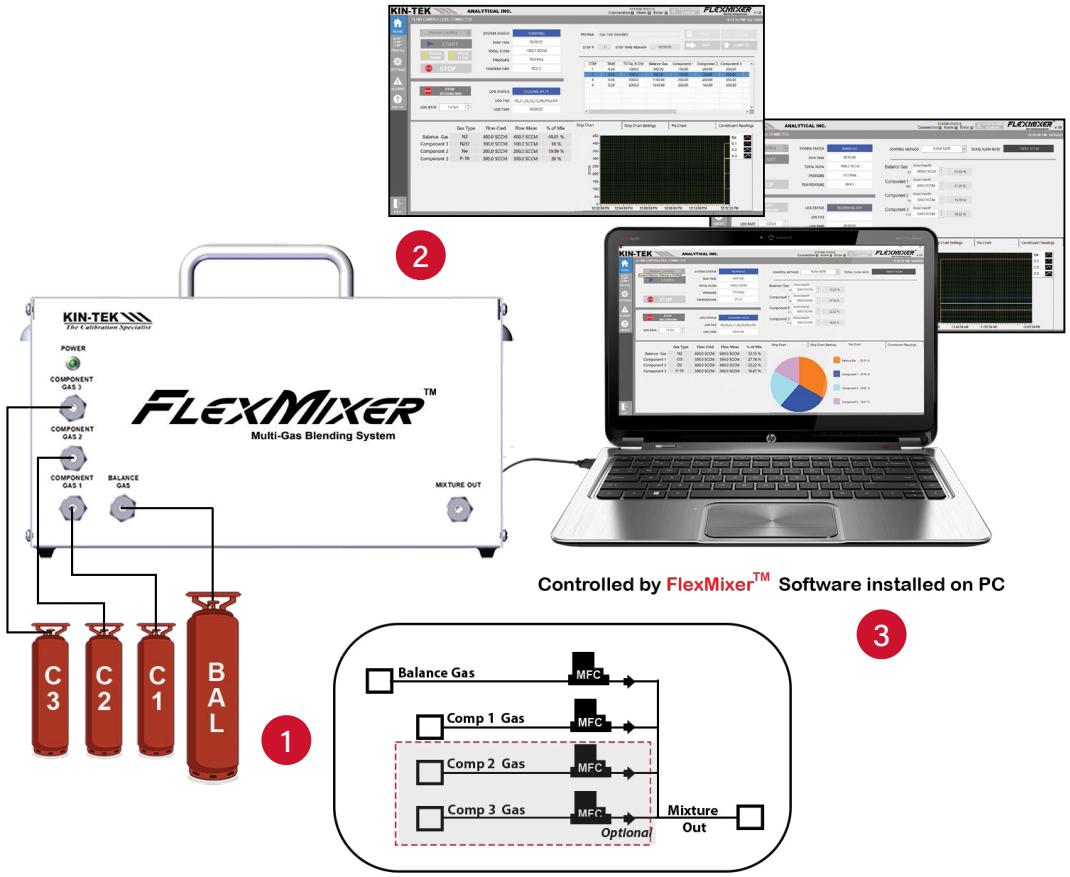

Figure 1 FlexMixer™ Multi-Gas Blending System - How it Works

1. The FlexMixer™ mixes or dilutes up to 4 separate gas feeds (or cylinder sources) to one Span Gas output channel. Gas feed sources are introduced into the FlexMixer™ at a recommended regulated pressure of 50 psig and the Balance Gas (typically Nitrogen or other inert gas) acts as the main diluent gas for the mixture.

2. Gases are mixed using precisely calibrated, NIST Traceable, internal Mass Flow Controllers (MFCs). The gas mixture composition is based on separately measured gas flows from each MFC which are independently calibrated (STP, 0°C, 760 mmHg reference) and calibrated within the system against NIST traceable flow calibration devices. An internal algorithm applies multi-point flow calibration offsets to each MFC for added accuracy.

3. The FlexMixer™ utilizes a PC computer running Windows 10 for interface operation.

While highly pure gases are typically used for gas mixing, the FlexMixer™ allows users to choose from 100+ preloaded gas configurations to avoid offsets from calculated K factors. Users also have the capability to create their own defined gas configuration related to their process source gas or specialty cylinder.

Solve Your Trace Level Calibration Challenges with KIN-TEK Analytical, Inc. Trace Source™ Permeation Tubes and Systems

The Trace Source™ Permeation Tube technology is employed in KIN-TEK's Gas Standard Generators to provide accurate, NIST traceable calibration standards. KIN-TEK's products include a range of gas standard generators and permeation devices to fit almost any application that relies on the delivery of an accurate trace gas concentration. Individual gas generator modules can operate as stand-alone calibrators or be combined into a Gas Standard Generator System configured to solve the most complex applications. The System utilizes the FlexLink™ software that can log and export data for analysis and reference.

Contact a customer service representative now and discuss your specific application.

KIN-TEK Analytical, Inc. (KIN-TEK), is a leader and preferred provider of devices and instrumentation used for creating trace concentration calibration gas standards and complex gas mixtures. KIN-TEK revolutionized permeation tube technology in the 1970's and further developed the technology to produce Trace Source™ Disposable and Refillable Permeation Tubes. The Trace Source™ Permeation Tube is employed in KIN-TEK's Gas Standard Generators to provide accurate, on-demand calibration standards. Calibration gas standards are available for over 550 chemical compounds, each with a Certificate of Calibration for traceability to National Institute of Standards and Technology (NIST). KIN-TEK delivers trace gas calibration solutions and services worldwide for customer specific applications in the laboratory, field, and process industries!

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The KIN-TEK Analytical, Inc. Quality Management System is registered by Intertek as conforming to the requirements of ISO 9001:2015.

For more information: https://kin-tek.com/kin-tek-quality

To learn more about KIN-TEK visit www.kin-tek.com